

Patent Claims

1. Tubular reactor (2) for catalytic reactions with a heat carrier that inside a reactor jacket (10) circulates around a contact tube bundle (8), which extends between a tube plate (2; 60; 82) at the reaction gas inlet side and a tube plate (6) at the reaction gas outlet side, as well as gas inlet and gas outlet hoods (12, 14) spanning the face sides of the two tube plates and containing reaction-inhibiting media in the zone of the tube plate on the inlet side of the reaction gas, characterized in that the reaction-inhibiting media consist entirely or in part of a heat insulation layer (46; 50; 64; 80) with openings for the tube cross-sections on at least one of the two sides of the respective tube plate (4; 60; 82).
2. Tubular reactor (2) as set forth in claim 1, characterized in that the heat insulation layer (46; 64; 80) is, at least predominantly, located at the heat carrier side of the tube plate (4; 60; 82).
3. Tubular reactor (2) as set forth in claim 1, characterized in that the heat insulation layer (50) is, at least predominantly, located at the reaction gas inlet side of the tube plate (4).
4. Tubular reactor (2) as set forth in one of the previous

claims, characterized in that the heat insulation layer (46; 50) exhibits a locally varying thickness.

5. Tubular reactor (2) as set forth in one of the previous claims, characterized in that the heat insulation layer (46; 50) exhibits a locally varying composition.

6. Tubular reactor (2) as set forth in one of the previous claims, characterized in that the heat insulation layer (46; 50; 64; 80) is limited to partial zones, such as tube-free areas or the edge area of the tube plate on the gas inlet side (2; 60; 82), for example.

7. Tubular reactor (2) as set forth in one of the previous claims, characterized in that the heat insulation layer (46; 50) consists, at least partially of ceramics, such as a glass frit, for example, or of a respective heat resistant solid material.

8. Tubular reactor (2) as set forth in one of the previous claims, characterized in that the heat insulation layer consists, at least partially, of a chamber (64).

9. Tubular reactor (2) as set forth in claim 8, characterized in that the chamber (64) contains a solid, liquid or gaseous heat insulation material.

10. Tubular reactor (2) as set forth in claim 9, characterized
in that a liquid or gaseous heat insulation material in the
chamber (64) is prevented from circulating by structures
that are installed in the chamber.

11. Tubular reactor (2) as set forth in claim 9, characterized
in that a liquid or gaseous cooling medium is circulated
throughout the chamber (64).

12. Tubular reactor (2) as set forth in claim 11,
characterized in that a partial stream of the heat carrier
circulating around the contact tube bundle (8) finds use as
a liquid cooling medium.

13. Tubular reactor (2) as set forth in claim 8, characterized
in that the chamber (64) is evacuated.

14. Tubular reactor (2) as set forth in one of the previous
claims, characterized in that the heat insulation layer (80)
consists, at least in part, of a flow-calming zone of the
heat carrier due to installations (84) such as honeycomb or
concentric ring structures, for example.

15. Tubular reactor (2) as set forth in claim 14,
characterized in that the installations (84) are, at least
on the side opposite the tube plate (82), covered,
preferably sealed.